

REMARKS

Claims 3, 4, 8-10, and 12-14 stand indicated allowable if rewritten in independent form including all the limitation of the base claim and any intervening claims. Claim 15 stands rejected under 35 USC §112, second paragraph, and indicated allowable if rewritten to overcome the rejection under 35 USC §112 and in independent form including all the limitation of the base claim and any intervening claims. Claims 1, 2, 5-7, 11 and 16-18 stand rejected under 35 USC §103(a) as being unpatentable over Jackson et al., U.S. patent 5,345,230.

Claims 1, 3-6, 8, 11, 12, and 14-18 have been amended. Indicated allowable claims 3 and 12 have been rewritten in independent form. Claims 5-6 have been amended to depend from allowable claim 3. Claims 16-17 have been amended to depend from allowable claim 12. Claim 18 has been amended to include the subject matter of allowable claim 3. Claim 15 has been amended to depend from claim 14 and thus to overcome the rejection under 35 USC §112. As amended, each of the claims 3-6, 8-10, and 12-18 are believed to be in condition for allowance.

Each of the independent claims 1 and 11 have been amended to more clearly state the invention; and independent claims 1 and 11, as amended, are likewise believed to be in condition for allowance. Claim 7 depends from independent claim 1 and is likewise believed to be in condition for allowance. Reconsideration and allowance of each of the claims 1-18 is respectfully requested.

Jackson et al., U.S. patent 5,345,230 discloses a method and apparatus for providing a self-test feature for an apparatus utilizing an optical communication link,

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such as commercial laundry appliances having a data acquisition system for storing information on appliance usage for subsequent transmission to a portable data unit. A signal having at least one known characteristic is applied to the transmitting portion of an optical transceiver, and at least a portion of the resulting transmitted optical energy is coupled to the optical detector of the receiving section of the same transceiver. The characteristics of the resulting output of the receiver elements of the transceiver corresponding to the coupled signal are compared to the corresponding characteristic of the known input signal. Correspondence of these characteristics will confirm valid operation of the transmitting elements and the receiving elements, and thus verify operation of the optical transceiver.

The present invention solves a problem of testing a parallel optical transceiver. In a production line, when the combined module is built and adjusted to a point where the module should be functional, it is desirable to test the module to determine that the module is functional. Such preliminary testing should identify if the manufacturing process can continue, or if the module should be scrapped, reworked or sent to another manufacturing line for testing and readjusting channels individually. It is desirable to provide such testing quickly so that manufacturing time could be saved. However, testing each of the parallel channels typically is very time consuming and requires complex, cumbersome and costly test equipment. When manufacture of a parallel optical transceiver is completed, the problem of quickly testing the parallel optical transceiver in the field is the same as during manufacture. To test the parallel optical transceiver, each of the parallel channels typically must be separately done

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using the same type of complex, cumbersome and costly test equipment used during manufacture.

As recited by independent claim 1, a method for testing a parallel optical transceiver comprising the steps of: connecting in series each of a plurality of channels of said parallel optical transceiver; applying a predefined data pattern to a first channel of said series connected plurality of channels; detecting an output from a last channel of said series connected plurality of channels; and comparing said applied predefined data pattern with said output to identify functional operation of said parallel optical transceiver. As acknowledged by the Examiner, the Jackson et al. patent does not disclose, and further does not suggest or provide any motivation for connecting in series each of a plurality of channels of said parallel optical transceiver. The additional steps of: applying a predefined data pattern to a first channel of said series connected plurality of channels; detecting an output from a last channel of said series connected plurality of channels; and comparing said applied predefined data pattern with said output to identify functional operation of said parallel optical transceiver, likewise are not disclosed, nor suggested by the Jackson et al. patent. The Jackson et al. patent teaches a self-test feature for apparatus including an optical communication link and lacks any suggestion or motivation to modify the disclosed self-test feature to achieve the claimed invention. Thus, independent claim 1, as amended, is patentable.

Independent claim 11, as amended recites apparatus for testing a parallel optical transceiver comprising: a plurality of connectors for connecting in series each of a plurality of channels of said parallel optical transceiver; a serial data generator for

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applying a predefined data pattern to a first channel of said series connected plurality of channels; and a serial data detector for detecting an output from a last channel of said series connected plurality of channels and for comparing said applied predefined data pattern with said output to identify functional operation of said parallel optical transceiver. Applicants respectfully submit that claim 11 is patentable for the same reasons as independent claim 1. Further the recited serial data generator for applying a predefined data pattern to a first channel of said series connected plurality of channels; and a serial data detector for detecting an output from a last channel of said series connected plurality of channels and for comparing said applied predefined data pattern with said output to identify functional operation of said parallel optical transceiver of independent claim 11 likewise are not disclosed, nor suggested by the Jackson et al. patent. Thus, independent claim 11, as amended, is patentable.

Applicants have reviewed all the art of record, and respectfully submit that the claimed invention is patentable over all the art of record, including the references not relied upon by the Examiner for the rejection of the pending claims.

It is believed that the present application is now in condition for allowance and allowance of each of the pending claims 1-18 is respectfully requested. Prompt and favorable reconsideration is respectfully requested.

If the Examiner upon considering this amendment should find that a telephone interview would be helpful in expediting allowance of the present application, the Examiner is respectfully urged to call the applicants' attorney at the number listed below.

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Respectfully submitted,

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